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1. Analogy
+ methodologies*

DCI/IC - 741254

January 29, 1974

MEMORANDUM FOR: General Graham

SUBJECT: Plan for Developing New Analytical Methodologies

This paper results from conversations with individuals at CIA (OSR, OER, OWI); DIA (DI, DP); NSA (P Group); State (INR). I have developed a number of views as to what the situation is and what needs to be done.

I perceive that there are in the intelligence community two groups which are significant with respect to new analytical methodologies; they are "producers" of new methodologies and "consumers" of new methodologies. With respect to these two it is true that the "producers" in general because of not being assigned, do not or cannot identify problems which might benefit from the applications of new methodology; and that consumers who by training are unable to develop quantitative methodologies are frequently unable to identify problems which could benefit from those new methodologies. It is true, moreover, that there is little cross-talk or conversation between the two groups although there is of course some. In the circumstances where there is conversation back and forth it is possible and perhaps even likely that the problems are not well stated when they are subjected to new analytical treatment and that the methodology applied is either mis-applied or incompletely applied or just not suitable where some other methodology might be.

That gives a rather bleak picture of the situation, which is warranted. This is not to say, however, that there is no good work being done. There is, and the criticism to be made in this event is that even where a methodology is aptly applied to a problem there are only primitive ways of communicating this information to other possible interested users in the community. It is too big a jump to say at this time that there ought to be symposia but one can certainly envision a classified journal which describes a problem, a suitable methodology in treating the problem and a generalization on the specific application to other, perhaps related, problems.

Though there is need for disseminating specific solutions for specific problems, there is a need also for substantial effort in generalizing the specific applications so that unrelated substantive problems will be recognized as having some commonness and when the commonness is understood the exploitation of the technique becomes wider. It is quite likely that this perceived need is coupled with the thoughts of the previous paragraph and would be cared for in an iterative way once some acts were taken on either.

Some comment has been made on the near lack of overlap between sources of problems and sources of new analytical methodological solutions. Many of the problems which appear to be candidates for new methodologies arise in what is normally referred to as the social or soft science areas such as politics, economics, behavior, sociology and so forth. Moreover, persons working in these areas I perceive tend to think holistically or synthetically about the problems which they attempt to solve and although they are referred to as analysts they do not customarily think in terms of trees, networks, models, feedback loops, influence coefficients and the like, which tend to characterize "analysis" in a physical sciences sense. On the other hand the practitioners of the development of new methodologies tend to be physical or hard science-oriented such as in mathematics, physics, communications, engineering, statistics, probability and the like. Such individuals tend to think about problems in an analytical way -- in which case "analysis" means disassembling an organism to its irreducible elements, understanding the function of its elements, understanding what is unique among the elements and then hypothesizing in mathematical terms what the interactions are -- and do not have access to the evolution of social science problems or if they do to understand them in their complexity which is to say their holistic character. It appears, even considering the ongoing efforts and the intentions and good will of both the consumers and the producers, that mechanisms perhaps outside the government need to be developed which might in an iterative and changing way cause the two groups each to appreciate the needs and attempts of the other.

I suggest that we need to organize candidate methodologies and candidate problems. We should begin by inventorying (1) ongoing activities both with respect to problems being treated and methodologies being attempted (2) those problems which could benefit from new approaches and (3) methodologies not yet applied but perhaps offering

promise. Such a call for information ought to involve both the producers and consumers in the community and need not require responses of any great length. Following the call for information we ought to "taxonomize" the relationship between methods and problems with a view toward identifying "clusters" that tend uniquely to associate methods and problems. Table 1 shows some problems of interest and some candidate methodologies.

As to how to do this, Figure 1 is a near trivial but not completely unrelated example of what is meant. In such a matrix we could, as a way of starting, identify the clusters as a community of interest and would put together problems, sponsors, and methodological practitioners. Such a grouping would have the advantage of identifying a group of offices, presumably with research funds, which might contribute relatively modest amounts of money to a pool which would be adequate to take on important efforts in a given area. It would be the coherence of the substance of the problems which gave the grouping importance. It is possible that a practitioner of the methodologies would in fact be a group of government outsiders who would be made up of individuals having common professional interests with the problem's sponsors as well as quantitative scientists who would contribute to the problem solutions. It is quite possible that in the evolution of such an arrangement and as our understanding improved, the makeup of the clusters with respect to problem sponsors and relevant methodologies would change or that clusters would merge. This speculation is intended only to indicate the dynamism that one ought to expect in the development of new analytical methodologies.

As a footnote to this, the emphasis of what goes before has been on the analysis of substantive intelligence problems. One ought not to rule out the application of new methodologies to resource management. There has of course been work done in this area by both CIA and DIA and there certainly is at least a superficial relationship between the military economics intelligence problem and intelligence resource management. This suggests that one ought not to limit the field of problems to substantive intelligence exclusively.

As to how to proceed, I propose that in concert with ARPA and DDS&T, I make a data or information call, that an attempt be made to "taxonomize" a methodologies and problems matrix and that subsequently a small group be called together to react to the initial efforts and as a step to create a sense of community in this area. One of the early efforts would be to identify common interest groups as a way of preparing to

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identify "centers of excellence" which would deal in the substantive area of analysis. In this last use analysis has the meaning of both the social scientist and physical scientist.



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